

160 scales in a series between the chin and vent. Dorsal scales not larger than the others; four præanal scales, the two middle ones largest; subcaudals not enlarged. No trace of limbs. Frontal separated from rostral by a pair of small intervening shields, but forming a short suture with the vertical; this latter shield is subtriangular in shape, with the posterior side the longest, and forms a very broad suture with an occipital shield, which is likewise triangular, its anterior side being the longest. The first upper labial is very large, ascending to behind the nostril, which is situated in a notch of the rostral. Ear entirely hidden. Black.

One specimen, from the Zambesi, is 8 inches long, the body being  $6\frac{1}{4}$  inches, and part of the tail reproduced.

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XXI.—On the *Longicorn Coleoptera* of Japan.

By H. W. BATES, F.L.S.

THE large collection of Coleopterous Insects made, during a residence of five years in Japan, by Mr. George Lewis, on which the present account of the family *Longicornia* is founded, furnishes materials for enabling entomologists for the first time to form a definite idea of the nature of the Japanese fauna in this department. Hitherto the number of species of *Longicornia* recorded from these islands has not reached a score. Mr. Lewis's collection contains 103, the total number now known being 107. Of these, 62 are new species discovered by Mr. Lewis. In a former paper, on the *Geodephaga*\*, I have recorded a similar great augmentation of our knowledge due to the labours of this entomologist, the number of known Japanese species in that group having been trebled by him, and 120 new species added to science.

With regard to the nature and relations of the Insect-fauna, an analysis of the list of *Longicornia* quite confirms the leading results arrived at in the memoir on the *Geodephaga* above cited. In the introductory notes to that paper, after describing the geographical position of the Japanese archipelago, and alluding to the views of many Russian and English entomologists in favour of the fauna being considered as forming part of the great Palæarctic province, I showed that the very large mixture of tropical genera and the striking absence of characteristic European and north-temperate forms were opposed to those views. The conclusion implied was

\* Trans. Entom. Soc. 1873, part ii. p. 219.

that the composition of the Japanese Coleopterous fauna was essentially different from that of the Palæarctic province, and required to be accounted for by a different set of antecedents. A similar conclusion has been arrived at long ago by Günther with regard to the *Reptilia*, and by other authors; and it is interesting thus to find the various groups of the animal kingdom corroborating these generalizations.

The total number of genera of *Geodephaga* known from Japan is 84, of *Longicornia* 64. The number of tropical genera in both cases is 21, of genera peculiar to Japan (so far as at present known) 9 and 7 respectively, genera common to Europe and Japan (most of them being widely distributed temperate forms) 44 and 22, characteristic or peculiar European genera absent from Japan 52 and 40 (more than one half the total number in each case). In the *Longicornia* there are 8 genera common and peculiar to Eastern or North-eastern China and Japan; in the *Geodephaga* there are only 2. The number of Longicorn species actually identical in Japan and Europe is only 4; but 6 others are so closely allied that they would be considered by some entomologists local varieties, making the total number 10.

The general aspect of the Longicorn collection is much more tropical and anti-European than that of the *Geodephaga*. This is owing to so many of the large and striking species being well-known Indo-Chinese and Malayan forms. Such are *Xystrocera*, *Neocerambyx*, *Pyrestes*, *Erythrus*, *Melanauster*, *Batocera*, *Apriona*, *Olenecamptus*, *Ælara*, *Glenea*, and others. Besides these, we find:—*Rhodopis*, hitherto known only from Sylhet; *Distenia*, a tropical and subtropical genus in both hemispheres, unknown to the Europæo-Siberian and Mediterranean faunas; *Thranis*, hitherto known only from the Moluccas and Ceylon; and a few common tropical genera represented in Japan by numerous species, such as *Ceresium*, *Praonetha*, *Apomecyna*, and *Sybra*—all totally foreign to the north-temperate continental fauna. The absence of many of the most familiar and characteristic European genera is equally striking, such as *Cerambyx*, *Hylotrupes*, *Hesperophanes*, *Gracilia*, *Necydalis*, *Stenopterus*, *Molorchus*, *Parmena*, *Dorcadion*, *Morimus*, *Lamia*, *Rhagium*, &c.

Many entomologists, authorities in their respective groups, are at work on other portions of Mr. Lewis's magnificent collection; and it is to be hoped this enterprising traveller may be enabled to republish all the scattered memoirs in a collected form, as a contribution to the fauna of Japan.

Mr. Lewis's collections were made chiefly at Nagasaki, Osaka, and Hiogo.

## List of Species.

## Fam. PRIONIDÆ.

- Prionus insularis*, *Motsch.*  
*Ægosoma sinicum*, *White.*

## Fam. CERAMBYCIDÆ.

- Spondylis buprestoides*, *Linn.*  
*Criocephalus rusticus*, *Linn.*  
*Xystrocera globosa*, *Oliv.*  
*Mallambyx japonicus*, n. sp.  
*Pachydissus* (?) *fulvidus*, *Pascoe.*  
*Neocerambyx chrysothrix*, n. sp.  
*Ceresium sinicum*, *White.*  
 — *holophæum*, n. sp.  
*Stenodryas clavigera*, n. sp.  
*Stenyrinum quadrinotatum*, n. sp.  
*Gracilia pygmæa*, *F.*  
*Obrium longicorne*, n. sp.  
*Stenhomalus cleroides*, n. sp.  
*Distenia japonica*, n. sp.  
*Toxotus cæruleipennis*, n. sp.  
*Acmæops criocerinus*, n. sp.  
*Leptura scotodes*, n. sp.  
 — *tenuicornis*, *Motsch.*  
 — *dimorpha*, n. sp.  
 — *xanthoma*, n. sp.  
 — *ochraceofasciata*, *Motsch.*  
 — *anaspidoïdes*, n. sp.  
*Thranus variegatus*, n. sp.  
*Pyrestes cardinalis*, *Pascoe.*  
*Erythrus congruus*, *Pascoe.*  
*Callichroma tenuatum*, n. sp.  
*Sympiezocera japonica*, *Lacord.*  
*Semanotus rufipennis*, *Motsch.*  
*Phymatodes albicinctus*, n. sp.  
*Clytanthus notabilis*, *Pascoe.*  
 — *oppositus*, *Chev.*  
 — *quinquefasciatus*, *L. & G.*  
 — *muscosus*, n. sp.  
 — *diminutus*, n. sp.  
 — *annularis*, *Fab.*  
*Xylotrechus Grayii*, *White.*  
 — *pyrrhoderus*, n. sp.  
*Clytus caproides*, n. sp.  
*Dere thoracica*, *White.*  
*Purpuricenus Temminckii*, *Guér.*  
 — *spectabilis*, *Motsch.*

## Fam. LAMIADÆ.

- Echthistatus gibber*, n. sp.  
*Monohammus subfasciatus*, n. sp.  
 — *tesserula*, *White.*  
 — *luxuriosus*, n. sp.  
 — *fraudator*, n. sp.  
 — *sejunctus*, n. sp.  
 — *degener*, n. sp.  
*Psacothæa hilaris*, *Pascoe.*

*Melanauster chinensis*, *Forst.*

- *glabripennis*, *Motsch.*  
 — (?) *ruber*, *Dalm.*  
*Batocera lineolata*, *Chev.*  
*Apriona rugicollis*, *Chev.*  
*Uræcha bimaculata*, *Thoms.*  
*Mesosa japonica*, n. sp.  
 — *perplexa*, *Pascoe.*  
 — *longipennis*, n. sp.  
*Rhodopsis Lewisi*, n. sp.  
*Olenecamptus cretaceus*, n. sp.  
*Bumetopia oscitans*, *Pascoe.*  
*Ælara furcata*, n. sp.  
*Praonetha caudata*, n. sp.  
 — *zonata*, n. sp.  
 — *jugosa*, n. sp.  
 — *Bowringii*, *Pascoe.*  
 — *rigida*, n. sp.  
 — *angusta*, n. sp.  
 — *leiopodina*, n. sp.  
*Apomecyna neglecta*, *Pascoe.*  
 — *ævia*, n. sp.  
*Sybra ordinata*, n. sp.  
 — *cribrella*, n. sp.  
*Microdera ptilinoides*, n. sp.  
*Atimura japonica*, n. sp.  
*Lasiapheles obrioides*, n. sp.  
*Pogonocherus seminiveus*, n. sp.  
*Aulaconotus pachypezoides*,  
*Thoms.*  
*Pothyne silacea*, *Pascoe.*  
*Smermus bimaculatus*, n. sp.  
*Calamobius japonicus*, n. sp.  
*Acanthocinus griseus*, *F.*  
*Leipus guttatus*, n. sp.  
*Exocentrus fasciolatus*, n. sp.  
 — *lineatus*, n. sp.  
 — *tonsus*, n. sp.  
 — *guttulatus*, n. sp.  
*Asaperda rufipes*, n. sp.  
 — *agapanthina*, n. sp.  
*Agapanthia pilicornis*, *F.*  
*Saperda sanguinolenta*, *Thoms.*  
*Thyestes Gebleri*, *Falderm.*  
*Glenea Fortunei*, *Saund.*  
 — *galathea*, *Thoms.*  
 — *ocelota*, n. sp.  
 — *relicta*, *Pascoe.*  
*Phytæcia simulans*, n. sp.  
 — *ventralis*, *Chev.*  
*Oberea japonica*, n. sp.  
 — *hebesceus*, n. sp.  
 — *mixta*, n. sp.  
 — *nigriventris*, n. sp.  
 — *marginella*, n. sp.  
 — *fulveola*, n. sp.  
*Chreonomus Fortunei*, *Thoms.*

## Fam. Prionidæ.

*Prionus insularis*, Motschulsky.

*Prionus insularis*, Motschulsky, Etudes Entom. 1857, p. 36, ♀; *id.* 1861, p. 21, ♂; Solsky, Horæ Soc. Ent. Ross. t. vii.

*P. tetanicus*, Pascoe, Ann. N. H. xix. p. 412 (1867).

*P. fossatus*, Pasc. Trans. Ent. Soc. 2nd ser. iv. p. 90 (1857) ?

Japan, common; also North China.

I see no difference between Japanese specimens and others from Northern China, whence Pascoe described his *P. fossatus*; his description, however, does not precisely agree with the insect, especially as regards punctuation, and I cite the synonymy with doubt.

*Ægosoma sinicum*, White.

*Ægosoma sinicum*, White, Cat. Long. Col. Brit. Mus. p. 30, ♀.

Many examples; on fir trees.

White only knew the female, which resembles the same sex of *Æ. scabricorne*. The male is much more different from the corresponding sex of that species, having much shorter and thicker antennæ, with the scape shorter and more cubical. The thorax differs in shape, being gradually widened from apex to base, at which latter it is nearly equal in width to the elytra.

## Fam. Cerambycidæ.

Section A. *Eyes coarsely faceted. Habits nocturnal.*

*Spondylis buprestoïdes*, Linn.

*Spondylis buprestoïdes*, Linn. Syst. Nat. xii. 2. p. 621.

Also found in N. China.

*Criocephalus rusticus*, Linn.

*Criocephalus rusticus*, Linn. Syst. Nat. xii. 2. p. 634; Kraatz, Berl. ent. Zeit. vii. p. 107.

Maiyasan; running over fir trees at night.

Japanese examples have punctured elytra and sutural apices briefly spinose, as in German specimens.

*Xystrocera globosa*, Oliv.

*Xystrocera globosa*, Oliv. Entom. no. 66. p. 27, t. 12. f. 81.

*Stenocorus vittatus*, Fab. Syst. El. ii. p. 309.

Many examples, agreeing with others from Cambodia, &c.

Fabricius erroneously cited Brazil as the locality of his *Stenocorus vittatus*, which is evidently the same as *Xystrocera globosa*.

*Pachydissus (Mallambyx) japonicus*, n. sp.

*P. minus* convexus, olivaceo-fuscus, pube subtili fulvo-grisea vestitus; thorace elytris multo angustiore, medio paulo dilatato, antice fortiter angustato, supra minus profunde flexuoso-plicato; elytris lævibus, apice singulatim rotundatis angulo suturali spinoso; antennis (♂) corpore dimidio longioribus, omnino inermibus, articulis tertio quartoque apice paululum incrassatis, 4<sup>to</sup> quam 5<sup>to</sup> multo brevior. Long. 1 in. 5 lin. to 2 in. ♂ ♀.

Japan.

Agrees with the typical (Australian) species of *Pachydissus* in the unarmed antennæ and thorax and the finely pubescent surface; but differs much in *facies* and in the very slight nodosity of the 3rd and 4th antennal joints. The combination of characters which the species offers renders it ill-placed in any of the genera hitherto proposed in this group; and it may be found convenient to separate it under the generic name *Mallambyx*. The sockets of the anterior haunches are angulate externally; but this character is not even of generic importance, although Lacordaire founded a section upon it; for some Australian species of *Pachydissus* possess strongly angulated acetabula, whilst others, very closely allied, have them only circular. The prosternal process is a little prominent at the edge of its posterior declivity; the mesosternum plane. The crown of the head has a single (central) groove, extending behind to the neck, as in *Cerambyx* and *Hoplocerambyx*, and not ending in a transverse groove at the level of the posterior margin of the eyes as in *Pachydissus*.

*Pachydissus* (?) *fulvidus*, Pascoe.

*Pachydissus* (?) *fulvidus*, Pascoe, Trans. Ent. Soc. new ser. iv. p. 236.

One example, Nagasaki; also North China.

The elytra are clothed with rather coarse, uniform, laid, tawny pubescence, and are rounded at the apex. The species may possibly come within the proposed genus *Mallambyx*; but I have seen only a female specimen, and therefore cannot decide.

*Neocerambyx chrysothrix*, n. sp.

*N. forma* et colore *Cer. aurifabro* (White) similis, at differt antennis nullomodo spinosis, nec thorace transversim plicato. Elongatus, subcylindricus, fulvo-fuscus, tomento sericeo mutabili vestitus; thorace utrinque medio spinoso, supra grossissime irregulariter rugoso et tuberculato, ad basin sulcis binis transversis; elytris apice breviter oblique truncatis, angulo exteriori paulo producto acuto, suturali longe spinoso; antennis (♀) articulis 3<sup>o</sup>–6<sup>um</sup> singu-

latim quam quinto distincte brevioribus ad apicem tumidulis.  
Long. 1 in. 3 lin. ♀.

Nagasaki.

The pubescence is rich tawny golden, thick and adpressed; it is laid or, as it may be described, *brushed* in different ways, sometimes convergent, and is of lighter and darker shades, the darker forming two indistinct flexuous bands across the elytra. The tomentum is also thick and coarse on the head and thorax, and clothes the whole of the antennæ. The thorax has no trace of transverse furrows or of central smooth plate, as in *Cer. holosericeus*, F.

The species belongs, but imperfectly, to the genus *Neocerambyx*, differing from it in the spined thorax, and in the sockets of the anterior haunches being scarcely opened externally.

*Ceresium sinicum*, White.

*Ceresium sinicum*, White, Cat. Long. Col. Brit. Mus. p. 245.

Nagasaki.

*Ceresium holophæum*, n. sp.

*C.* quam *C. sinico* minus elongatum, omnino fulvo-testaceum, flavo-pubescent; capite grosse inæqualiter punctato; thorace oblongo-ovato, punctis magnis et parvis subcrebre impresso, linea abbreviata, elevata, dorsali, lævi; elytris crebre æqualiter punctatis; antennis articulis tertio quartoque subæqualibus, quinto vix longiore. Long.  $4\frac{1}{2}$  lin.

Hiogo; three examples, apparently males.

STENODRYAS, nov. gen.

Genus inter *Callidiopsides* et *Gracilides* (Lacord.) locum tenens.

*Corpus* elongatum, gracile, subglabrum. *Caput* thorace latius; oculi magni, convexi; genis brevibus. *Palpi* maxillares labialibus duplo longiores; articulis ultimis omnium dilatatis, triangularibus. *Antennæ* (♂) corpore dimidio longiores, tenues, filiformes, nullo modo sulcatæ, basin versus infra ciliatæ; articulo quarto quam tertio vel quinto multo brevior. *Thorax* elongatus, cylindroideus, medio paululum dilatatus, vix inæqualis. *Elytra* apice rotundata. *Coxæ* anteriores conico-globosæ exsertæ; prosternum inter coxas angustissimum. *Mesosternum* angustum, coxis globosis, acetabulis clausis; episterna metathoracica angusta, postice attenuata. *Pedes* elongati, gracillimi, femoribus abrupte elongato-clavatis; tarsi graciles, articulo primo secundo tertioque conjunctis æquali.

The numerous examples of this species that I have seen all appear to be males; at least I have observed no difference in the antennæ or the abdomen, which latter is quite normal; and consequently I am unable to say whether the ♀ offers the

curious abnormal structure presented by *Obrium* and many allied genera. The genus has much general similarity to *Ceresium*, except in the long slender legs and abruptly clubbed femora. The exerted anterior coxæ bring it, so far, within the definition of the *Gracilides* (Lacord.); but the tightly closed middle sockets exclude it from that group.

*Stenodryas clarigera*, n. sp.

*S. angusta*, fulvo-testacea, sparsim pubescens; antennarum scapo, femorum clava tibiæque apice piceo-nigris; capite supra rugoso-punctato; thorace subsparsim punctato, subopaco, plaga elongata mediana lævi, disco utrinque inæquali; elytris passim æqualiter discrete punctatis. Long.  $4\frac{3}{4}$  lin. ♂.

Hiogo.

STENYGRINUM, nov. gen.

Facie generis *Stenygræ*, gen. *Ceresio* affine. *Thorax* cylindricus, sed femoribus abrupte valde clavatis et tibiis intermediis fortiter curvatis. *Corpus* elongatum, sparse setosum. *Caput*, cum oculis convexis, thorace paulo latius; palporum articulo ultimo dilatato triangulari, maxillaribus elongatis. *Antennæ* robustæ, filiformes, articulis 5<sup>a</sup>–10<sup>um</sup> apice extus productis, articulo quarto parvo, quam tertio vel quinto dimidio brevior. *Coxæ* antiçæ globosæ; prosternum inter coxas modice angustum; mesosternum planum.

This new genus is closely allied to *Ceresium*, and still more so to the Australian genus *Bethelium*, from which latter it differs in the cylindrical (instead of cordate) thorax and less hirsute antennæ. The elytra are similarly coloured to the Tropical-American genus *Stenygra*, and they are also distinguished by two oblique depressions on each, one near the suture towards the base, and the other on the posterior part of the disk. The legs are rather short and stout; the femora of all abruptly and strongly clavate. The intermediate tibiæ are strongly bent outwards, as it appears, in both sexes. The antennæ in the ♂ are a little longer (in the ♀ a little shorter) than the body.

*Stenygrinum quadrinotatum*, n. sp.

*S. elongatum*, convexum, sparse setosum, rufo-castaneum; elytris medio fusco-nigris, maculis duabus utrinque discoidalibus flavo-testaceis, una paulo ante, altera apud medium; thorace juxta apicem constricto, ante medium paululum dilatato, suberebre haud profunde punctulato, punctis majoribus rugulisque intermixtis, lineâ dorsali lævi; elytris punctis piliferis discretis, versus apicem minutissimis. Long. 5 lin. ♂ ♀.

Ipongi; three examples.

*Gracilia pygmæa*, Fab.*Gracilia pygmæa*, Fab. Syst. El. ii. p. 339.

One example, Osaka ; not distinguishable from the European species.

*Obrium longicorne*, n. sp.

*O. brunneo* paulo majus et latius, fulvo-testaceum, subtiliter dense pubescens et longe setosum, haud nitidum ; oculis (♂) maximis ; antennis corpore duplo longioribus ; thorace ut in *O. brunneo* tuberculato, postice magis angustato, sparsim punctulato ; elytris supra subplanis, crebre punctulatis. Long.  $2\frac{1}{2}$  lin. ♂.

One example.

By the magnitude of its eyes this species approaches *Stenhomalus* (White).

*Stenhomalus cleroïdes*, n. sp.

*S. nigro-fuscum*, pubescens, antennis pedibusque rufo-testaceis, femoribus tibiisque medio infuscatis ; thorace aureo-pubescente, tubere laterali valido, basi constricto, supra sparsim punctato ; elytris basin versus sparsim punctatis, pallido-testaceis macula communi basali rhomboidea, altera subquadrata pone medium antice obliqua, tertiaque parva transverse ante apicem nigro-fuscis. Long.  $3\frac{1}{2}$  lin. ♀.

Two examples, Ipongi.

Differs from *St. fenestratus* (White) by the design on the elytra. Their ground-colour is pale testaceous, with a large spot at the base, touching the base on the scutellum, ending in a point on the suture posteriorly, and leaving the shoulders pale ; a subtriangular spot follows this behind the middle, narrowing to a point towards the suture. These two black patches leave between them a very oblique V-shaped pale fascia. The pale apical part has in the middle a faint dusky spot. The abdomen of the ♀ has a similar abnormal structure to that of *Obrium*, the 2nd ventral segment having a long fringe of hairs, and the 3rd to 5th being hidden in its posterior concavity.

*Distenia japonica*, n. sp.

*D. magna*, elongata, fusca, subtiliter pubescens, antennis pedibusque subrufescentibus ; capite pone oculos tumido ; thorace lato, crebre punctulato, disco utrinque bituberculato ; elytris apice angulo suturali longe dentato, supra sparsim lineato-punctatis, dimidio apicali lævi ; femoribus inermibus. Long. 11–14 lin. ♂ ♀.

Maiyasan, Hiogo ; many examples, found at night running over fir trees.

A typical *Distenia*, allied to *D. undata*, but differing from

all the American species, even those with only one apical spine to the elytra, by the spine (or sharp tooth) being a prolongation (a little divergent) of the sutural angle, and not distant from it; from the spine the apex is gradually rounded to the sides. The punctuation of the elytra is scanty and in lines. The thorax is rather wider than usual in the middle, and the discoidal tubercles are very obtuse. The head is tumid behind the eyes, more distinctly so in the ♂ than in the ♀. The scape of the antennæ is roughly punctured. There is no long pubescence on body or limbs.

[To be continued.]

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XXII.—*Notes on Chinese Mud-Tortoises (Trionychidæ), with the Description of a new Species sent to the British Museum by Mr. Swinhoe, and Observations on the Male Organ of this Family.* By Dr. J. E. GRAY, F.R.S. &c.

[Plate V.]

MR. SWINHOE has most kindly sent to the British Museum several specimens, preserved in spirits, of Mud-Tortoises from the neighbourhood of Shanghai.

The collection contains:—a large specimen of the most beautiful species of Mud-Tortoise which I have yet observed from any country; and I believe it to be new to science; three specimens of a very plain olive Mud-Tortoise, which are peculiar for having the crown of the head and nose covered with a hard very thin skin, somewhat like the skin which covers the head of the Terrapins; and several specimens of different ages, but all young, of *Landemania perocellata*, showing the change of colour in the young animals of this species as they increase in age.

This collection is also interesting as showing the form of the male organ and the external sexual character of the males of this group of Chelonians. The specimens having been killed by being placed in spirit, the male organ has been exerted in two of the specimens. It is expanded and fan-shaped, with the urethral grooves on the lower side forked and ending in conical claw-like terminations. In both specimens the tail is short, tapering to a very fine point, and ending in a hard spine; while the tails of the other specimens are all without points, soft, and rather blunt at the end. The armed tail is the character that Leconte gives of the males of *Kinosternon*.

The Reptiles have been divided into:—those which have a single male organ for intromission, as the Tortoises, the Crocodiles, &c.; and those which have a pair of organs for the